

CLAIMS

WHAT IS CLAIMED IS:

1. A jettable solution comprising:
an oil, said oil being one of a naturally occurring oil, an edible oil, or a removable oil;
an edible surfactant;
an edible aqueous solution; and
a pharmaceutical solubilized into said oil;
wherein said oil, said pharmaceutical, said surfactant, and said aqueous solution form a microemulsion.
2. The jettable solution of claim 1, wherein said pharmaceutical comprises a water insoluble pharmaceutical.
3. The jettable solution of claim 2, wherein said pharmaceutical comprises one of or a derivative of a water insoluble peptides an antimicrobial, a proton pump inhibitor, a calcium channel blocker, a beta blocker, an anesthetic, a steroid, an antioxidant, a rennin inhibitor, an alkaloid, a cytostatica, an anti-coagulant, a lipid regulating agent, an anti-depressant, a neuroleptic, an immunosuppressant, an immunomodulator, an antibiotic, an anti-inflammatory agent, an anitneoplastic, a paclitaxel, a taxol, a tyloxapol, a docetaxel, a lovastatin, an indometacine, a diclofenac, a naproxen, a dexibuprofen, a rofecoxib, a celecoxib, a celecoxib nitrendipine, a flurbiprofen, a diclofenac, a ketoprofen, a piroxicam, a tenoxicam, a vincristine, a vinblastine, an insulin, a calcitonin, an erythropoietin, a cephalosporin, a desmopressin, an etoposide, a leuprolide, or a cyclosporin such as cyclosporin A, dihydrocyclosporin C, dihydrocyclosporin D, cyclosporin D.
4. The jettable solution of claim 1, wherein said oil and said surfactant form a plurality of micelles in said aqueous solution.

5. The jettable solution of claim 1, wherein said naturally occurring oil comprises one of a castor oil, an oleic acid and an oleyl alcohol, a coconut oil, a mineral oil, a cottonseed oil, a squalene, a safflower oil, or a fatty ester.

6. The jettable solution of claim 1, wherein said removable oil is configured to be evaporated under the influence of heat or vacuum.

7. The jettable solution of claim 6, wherein said removable oil comprises one of an alcohol, a cyclic alcohol, a terpene, an aromatic side chain alcohol, a ketone, or an ester.

8. The jettable solution of claim 1, wherein said aqueous solution comprises water.

9. The jettable solution of claim 8, wherein said aqueous solution and said surfactant form a plurality of micelles in said naturally occurring oil.

10. The jettable solution of claim 1, wherein said surfactant comprises one of a lecithin, a sphingolipid, a galacto lipid, an ethoxylated castor oil, a polyoxyl 40 hydrogenated castor oil, an ethoxylated fatty ester, a sucrose fatty ester, a sorbitol, a sorbitan, a polyoxyethylene derivative, an alkyl glucoside, an alkyl polyglucoside, an ethoxylated mono-hydroxy stearic acid, a bile salt, a polyoxyethylene-sorbitan monooleate, a polyoxyethylene-sorbitan monopalmitate, a polyoxyethylene-sorbitan monolaurate, nicotinamide or a nicotinamide derivative, a polyoxyethylene sorbitan monostearate, cholic acid or bile salts, nicotinic acid and nicotinamide derivatives, acetylinic alcohols, polyhydroxylated alcohols, aromatic sulfonate salts such as xylene sulfonates, naphthalene sulfonates, cymene sulfonate, or Ethylene Oxide-Propylene Oxide block (pluronic) polymers.

11. The jettable solution of claim 1, wherein said surfactant comprises an ion-pair formation between an amino acid and a fatty acid.

12. The jettable solution of claim 11, wherein:
said amino acid comprises one of an L- arginine or an L-lysine; and
said fatty acid comprises one of a stearic acid or an oleic acid.

13. The jettable solution of claim 1, further comprising an edible solvent.

14. The jettable solution of claim 13, wherein said edible solvent comprises a salt.

15. The jettable solution of claim 1, further comprising one of a biocide a viscosity modifier, a humectant, an antifoaming agent, a surface tension adjusting agent, a rheology adjusting agent, a pH adjusting agent, a drying agent, a color, an acrylic polymer, or a non-acrylic polymer.

16. The jettable solution of claim 1, wherein said solution comprises a viscosity of less than approximately 5 centipoise and a surface tension approximately between 25 to 60 dynes per centimeter.

17. The jettable solution of claim 1, wherein a pharmaceutical release rate of said solution is varied by varying said naturally occurring oil.

18. The jettable solution of claim 1, further comprising:
approximately 5% L-arginine by volume;
approximately 6% stearic acid by volume;
approximately 15% soy bean oil by volume; and
approximately 74% aqueous solution by volume.

19. A method for forming a jettable pharmaceutical based microemulsion comprising:
preparing a microemulsion; and
dispensing a water insoluble pharmaceutical into said microemulsion;
said microemulsion being configured to be selectively dispensed from an inkjet material dispenser.

20. The method of claim 19, wherein said preparing a microemulsion comprises:
combining an oil, an edible surfactant, and an aqueous solution;
wherein said oil comprises one of a naturally occurring pharmaceutical solubilizing oil or a removable oil; and
said combination resulting in a formation of a plurality of micelles emulsified in a solution.

21. The method of claim 20, wherein said preparing a microemulsion further comprises agitating said combination.

22. The method of claim 20, wherein said preparing a microemulsion further comprises adding thermal energy to said combination.

23. The method of claim 20, wherein said naturally occurring pharmaceutical solubilizing oil comprises one of a castor oil, an oleic acid and an oleyl alcohol, a coconut oil, a mineral oil, a cottonseed oil, a squalene, a safflower oil, or a fatty ester.

24. The method of claim 19, wherein said pharmaceutical comprises one of or a derivative of a water insoluble peptides an antimicrobial, a proton pump inhibitor, a calcium channel blocker, a beta blocker, an anesthetic, a steroid, an antioxidant, a rennin inhibitor, an alkaloid, a cytostatica, an anti-coagulant, a lipid regulating agent, an anti-depressant, a neuroleptic, an immunosuppressant, an immunomodulator, an antibiotic, an anti-inflammatory

agent, an anitneoplastic, a paclitaxel, a taxol, a tyloxapol, a docetaxel, a lovastatin, an indometacine, a diclofenac, a naproxen, a dexibuprofen, a rofecoxib, a celecoxib, a celecoxib nitrendipine, a flurbiprofen, a diclofenac, a ketoprofen, a piroxicam, a tenoxicam, a vincristine, a vinblastine, an insulin, a calcitonin, an erythropoietin, a cephalosporin, a desmopressin, an etoposide, a leuprolide, or a cyclosporin such as cyclosporin A, dihydrocyclosporin C, dihydrocyclosporin D, cyclosporin D.

25. The method of claim 20, wherein said aqueous solution comprises water.

26. The method of claim 20, wherein said edible surfactant comprises one of a lecithin, a sphingolipid, a galacto lipid, an ethoxylated castor oil, a polyoxyl 40 hydrogenated castor oil, an ethoxylated fatty ester, a sucrose fatty ester, a sorbitol, a sorbitan, a polyoxyethylene derivative, an alkyl glucoside, an alkyl polyglucoside, an ethoxylated mono-hydroxy stearic acid, a bile salt, a polyoxyethylene-sorbitan monooleate, a polyoxyethylene-sorbitan monopalmitate, a polyoxyethylene-sorbitan monolaurate, a polyoxyethylene sorbitan monostearate, cholic acid or bile salts, nicotinic acid and nicotinamide derivatives, acetylininc alcohols, polyhydroxylated alcohols, aromatic sulfonate salts such as xylene sulfonates, naphthalene sulfonates, cymene sulfonate, or Ethylene Oxide-Propylene Oxide block (pluronic) polymers,.

27. The method of claim 20, wherein said edible surfactant comprises an ion-pair formation between an amino acid and a fatty acid.

28. The method of claim 27, wherein:
said amino acid comprises one of an L- arginine or an L-lysine; and
said fatty acid comprises one of a stearic acid or an oleic acid.

29. A method for forming a jettable pharmaceutical based microemulsion comprising:

dissolving a pharmaceutical in a naturally occurring pharmaceutical solubilizing oil; and

combining said dissolved pharmaceutical in a naturally occurring oil with an aqueous solution and an edible surfactant.

30. The method of claim 29, wherein said dissolving further comprises mixing said pharmaceutical and said naturally occurring pharmaceutical solubilizing oil until a semi transparent or transparent liquid results.

31. The method of claim 29, further comprising agitating said combination to facilitate a formation of said microemulsion.

32. The method of claim 29, further comprising adding thermal energy to said combination to expedite a formation of said microemulsion.

33. A method for forming an oral medication comprising: /
presenting an edible structure adjacent to an inkjet material dispenser;
and
selectively dispensing a jettable pharmaceutical based microemulsion from said inkjet material dispenser onto said edible structure.

34. The method of claim 33, wherein said inkjet material dispenser comprises one of a thermally actuated inkjet dispenser, a mechanically actuated inkjet dispenser, an electro-statically actuated inkjet dispenser, a magnetically actuated dispenser, a piezo-electrically actuated inkjet dispenser, or a continuous inkjet dispenser.

35. The method of claim 33, wherein said selectively dispensing comprises dispensing a predetermined dosage of said jettable pharmaceutical based microemulsion.

36. The method of claim 33, wherein said edible structure comprises one of a polymeric or paper organic film former.

37. The method of claim 33, wherein said a jettable pharmaceutical based microemulsion comprises:
an aqueous solution; and
an naturally occurring oil based micelle, said micelle including a pharmaceutical payload.

38. The method of claim 33, further comprising dividing said edible structure into a plurality of single oral doses.

39. The method of claim 33, further comprising selectively dispensing a plurality of a jettable pharmaceutical based microemulsions onto said edible structure, said plurality of aqueous pharmaceuticals forming a combination therapy.

40. A system for dispensing an oral medication comprising:
an edible structure; and
a jettable pharmaceutical based microemulsion configured to be dispensed onto said edible structure.

41. The system of claim 40, wherein said edible structure comprises one of a rice starch based paper, a potato starch based paper, or an edible polymer.

42. The system of claim 40, further comprising:
a computing device disposed adjacent to said edible structure;
an inkjet material dispenser communicatively coupled to said computing device; and

a material reservoir fluidly coupled to said inkjet material dispenser, said material reservoir being configured to supply said a jettable pharmaceutical based microemulsion to said inkjet material dispenser.

43. The system of claim 42, wherein said computing device comprises one of a personal computer, a laptop computer, a personal digital assistant, or a cellular telephone.

44. The system of claim 42, wherein said inkjet material dispenser comprises one of a thermally actuated inkjet dispenser, a mechanically actuated inkjet dispenser, an electro-statically actuated inkjet dispenser, a magnetically actuated dispenser, a piezo-electrically actuated inkjet dispenser, or a continuous inkjet dispenser.

45. A jettable solution comprising:
a water insoluble pharmaceutical payload; and
a means for emulsifying said pharmaceutical payload into a jettable solution.

46. The jettable solution of claim 45, wherein said jettable solution further comprises a means for stably dispersing said encapsulated pharmaceutical payload.

47. A system for dispensing an oral solution comprising:
an edible means for receiving a pharmaceutical payload solution; and
a jettable pharmaceutical based microemulsion configured to be dispensed onto said means for receiving a pharmaceutical payload solution.

48. The system of claim 47, wherein said edible means for receiving a pharmaceutical payload solution comprises one of a rice starch based paper, a potato starch based paper, or an edible polymer.

49. The system of claim 47, further comprising:
a means for computing disposed adjacent to said edible structure;
a means for selectively dispensing said pharmaceutical payload solution
communicatively coupled to said means for computing; and
a material reservoir fluidly coupled to said means for selectively
dispensing said pharmaceutical payload solution, said material reservoir being
configured to supply said a jettable pharmaceutical based microemulsion to
said inkjet material dispenser.